

Product Specifications

Industrial RS232/RS422/RS485 Serial Device Server

ICS-2200T / ICS-2400T

Version 1.0

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Change History:

Revision	Date	Author	Change List
1.0	2019/04/20	Ricebean	Initial release

Author	Ricebean	Editor:	Ricebean
Reviewed by:		Approved by:	Kent Kang

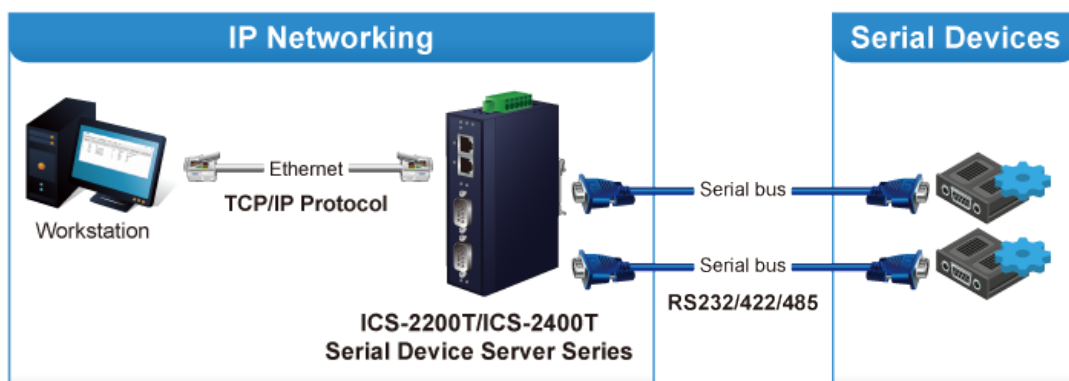
1. PRODUCT DESCRIPTION

Cost-effective Solution for RS232/422/485 Serial-to-Industrial Ethernet Application

PLANET ICS-2x00T Serial Device Server series is specially designed to convert RS232, RS422 or RS485 serial communication to Industrial Fast Ethernet networking so as to extend the network distance efficiently and inexpensively. There are two 10/100BASE-TX RJ45 ports available in the ICS-2x00T series for your network needs. The ICS-2x00T series is a time-saving and cost-effective solution for users and system integrators to quickly transform their serial devices into the Ethernet network with no need of replacing the existing serial devices and software system.



Convert Multiple Serial Devices to IP Networking



Remote Management

As the ICS-2x00T series provides an easy serial-to-Ethernet connectivity and connection to a TCP/IP network, the remote network system can thus be managed efficiently via its Web, telnet and VCOM management interfaces. It supports both application and serial operation modes for alarm or IP address connection, which saves the network administrator's time in detecting and locating network problems without visual inspection of the cabling and devices. Multiple connection options are available for large networking environment as well.



Stable Performance under Difficult Environments

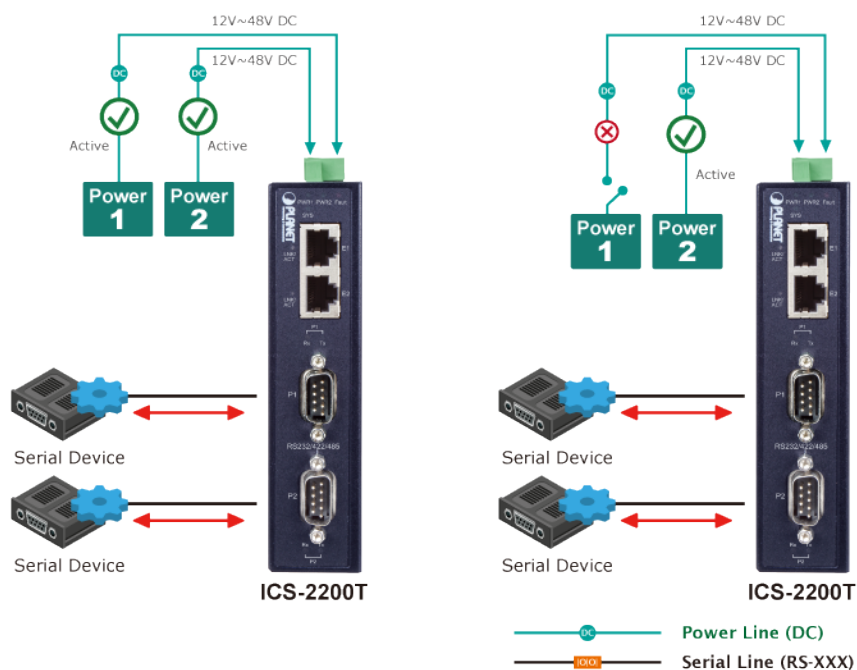
The ICS-2x00T series provides a high level of immunity against electromagnetic interference and heavy electrical surges which are usually found on plant floors or in curbside traffic control cabinets. Its operating temperature ranging from -40 to 75 degrees C allows the ICS-2x00T series to be placed in almost any difficult environment.

The ICS-2x00T series, equipped with compact IP30 and IP40 standard metal case, allows either DIN-rail or wall mounting for efficient use of cabinet space. The ICS-2x00T series also provides an integrated power supply source with a wide range of voltages (12 to 48V DC) ideally suitable for worldwide operation with high availability applications requiring dual or backup power inputs.

Dual Power Input for High Availability Network System

The ICS-2x00T series features a strong dual power input system with wide-ranging voltages (12V~48V DC) incorporated into customer's automation network to enhance system reliability and uptime. In the example below, when Power Supply 1 fails to work, the hardware failover function will be activated automatically to keep powering the ICS-2x00T series via Power Supply 2 without any break of operation.

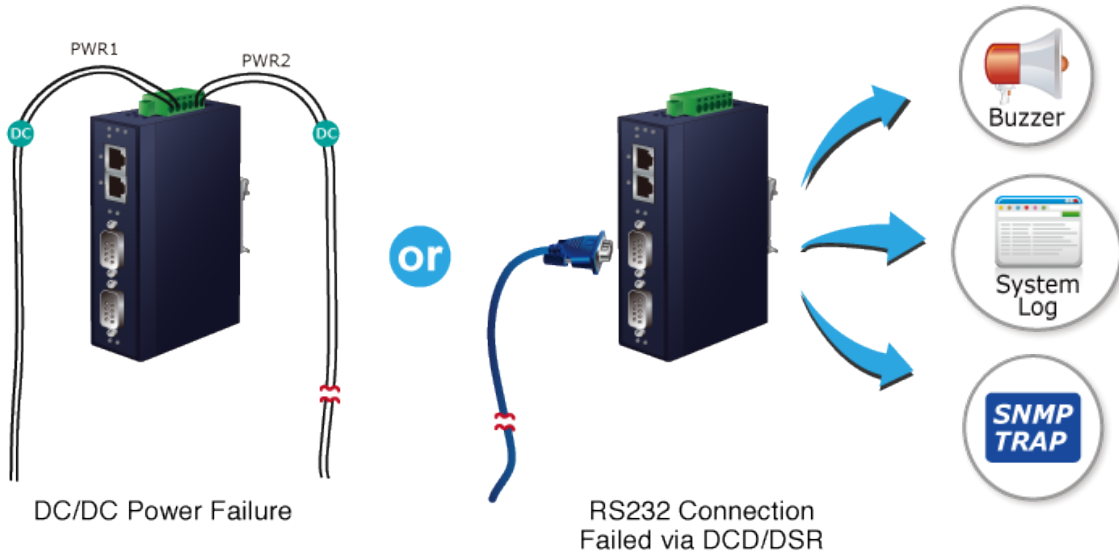
Non-stop Ethernet Service with Dual Power Input & Auto Failover



Effective Alarm Alert for Better Protection

The ICS-2x00T series comes with a Fault Alarm feature which can alert the users when there is something wrong with the Serial Device Server. With this ideal feature, the users would not have to waste time finding where the problem is. It will help to save time and human resource. The ICS-2x00T series provides event alert function to help to diagnose the abnormal device owing to whether or not there is a break of the network connection, or the rebooting response.

Fault Alarm Feature



Digital Input and Digital Output for External Alarm

With digital input and digital output on its front panel, an external alarm can help users via the digital input to detect and log external device status (such as door intrusion detector), and then immediately send an event alarm to the administrator. The digital output can be used to alarm the administrator if the ICS-2400T serial port shows DCD, changed DSR or power failure.

2. PRODUCT FEATURES

➤ **Serial Interface**

- **ICS-2200T**: Two DB9 interfaces support RS232, 2-wire RS485, 4-wire RS485 and RS422 operation
- **ICS-2400T**: Four DB9 interfaces support RS232, 2-wire RS485, 4-wire RS485 and RS422 operation
- Asynchronous serial data rates up to 921600bps
- Data modes include VCOM, RFC2217, TCP Server, TCP Client, UDP, Remote Pair and Serial Telnet modes

➤ **Ethernet Interface**

- 2-port 10/100BASE-TX RJ45 interface with auto MDI/MDI-X function
- Ethernet ports support Ethernet switch or cascading operation for easy wiring

➤ **Management**

- IPv4 and IPv6 dual stack management
- Remote Management Interfaces
 - IP-based Web management
 - Telnet console management
 - Windows-based VCOM utility supports searching, monitoring and configuration setting
- IP NTP (Network Time Protocol) and DNS management
- Standard TCP/IP interface and versatile operation modes
- Software Protocol supports ARP, ICMP, TCP/IP, UDP, HTTP server, DHCP client, Telnet server/client
- Serial Operation mode selected via management interface
- Pair Connection mode for connecting two serial devices over a network
- Allows a max. of 4 hosts to be accessed as TCP client mode
- Firmware upgrade via HTTP protocol
- Accessible IP security control to prevent illegal users
- Event notification
 - Remote Syslog server
 - SNMP trap
 - Built-in buzzer
 - Relay output alarm
 - Digital Output (ICS-2400T)
- DHCP client for IP address assignment
- PLANET Smart Discovery utility automatically finds the client devices on the network

➤ **Industrial Case and Installation**

- **ICS-2200T**: IP30 metal case
- **ICS-2400T**: IP40 metal case
- DIN-rail and wall-mount designs
- Redundant power design
 - 12 to 48V DC, redundant power with polarity reverse protect function
- Supports 6000 VDC Ethernet ESD protection
- -40 to 75 degrees C operating temperature

- Free fall, shock-proof and vibration-proof for industries
- Supports extensive LED indicators for network diagnosis
- Reset button for reset to factory default

➤ **Digital Input and Digital Output (ICS-2400T)**

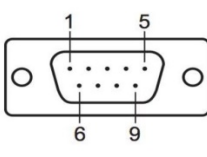
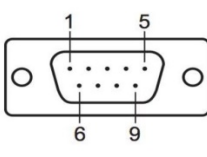
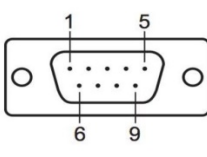
- 2 Digital Input (DI)
- 2 Digital Output (DO)
- Integrate sensors into auto alarm system
- Transfer alarm to IP network via email and SNMP trap

3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

Serial Port Server Controller	Confidential information	x 1
CPU	Embedded 32-bit CPU, 150MHz	x 1
RS232 Line Driver	ZT3243E	x 1
RS422/RS485 Line Driver	AZRS3078	x 2
Ethernet Switch Controller	IP178GI	x 1
Flash Size	32M bytes	x 1
DRAM Size	64M bytes	x 1

3.2 FUNCTION SPECIFICATIONS

Product	ICS-2200T	ICS-2400T																																										
Serial Interface																																												
Serial Ports	2 x DB9 male	4 x DB9 male																																										
Serial Standards	RS232/RS422/4-wire RS485/2-wire RS485																																											
Baud Rate (Data Rate)	50bps to 921Kbps																																											
Data Bits	5, 6, 7, 8																																											
Parity Type	1, 1.5, 2																																											
Stop Bit	Odd, Even, None, Space, Mark																																											
Flow Control	RTS/CTS and DTR/DSR (RS232 only) XON/XOFF																																											
Signals	RS232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND RS422: Tx+, Tx-, Rx+, Rx-, GND 4-wire RS485: Tx+, Tx-, Rx+, Rx-, GND 2-wire RS485: Data A (+), Data B (-), GND																																											
Pin Assignment	<table border="1"> <thead> <tr> <th>Male DB9</th> <th>Pin</th> <th>RS232</th> <th>RS422 RS485-4W</th> <th>RS485-2W</th> </tr> </thead> <tbody> <tr> <td rowspan="9">  </td> <td>1</td> <td>DCD</td> <td>TxD+</td> <td>--</td> </tr> <tr> <td>2</td> <td>RxD</td> <td>TxD-</td> <td>--</td> </tr> <tr> <td>3</td> <td>TxD</td> <td>RxD-</td> <td>Data-</td> </tr> <tr> <td>4</td> <td>DTR</td> <td>RxD+</td> <td>Data+</td> </tr> <tr> <td>5</td> <td>GND</td> <td>GND</td> <td>GND</td> </tr> <tr> <td>6</td> <td>DSR</td> <td>--</td> <td>--</td> </tr> <tr> <td>7</td> <td>RTS</td> <td>--</td> <td>--</td> </tr> <tr> <td>8</td> <td>CTS</td> <td>--</td> <td>--</td> </tr> <tr> <td>9</td> <td>--</td> <td>--</td> <td>--</td> </tr> </tbody> </table>		Male DB9	Pin	RS232	RS422 RS485-4W	RS485-2W		1	DCD	TxD+	--	2	RxD	TxD-	--	3	TxD	RxD-	Data-	4	DTR	RxD+	Data+	5	GND	GND	GND	6	DSR	--	--	7	RTS	--	--	8	CTS	--	--	9	--	--	--
Male DB9	Pin	RS232	RS422 RS485-4W	RS485-2W																																								
	1	DCD	TxD+	--																																								
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	6	DSR	--	--																																								
	7	RTS	--	--																																								
	8	CTS	--	--																																								
	9	--	--	--																																								
Serial Line Protection	2KV isolation protection 1.5KV (level 2) surge protection 15KV ESD protection																																											
Ethernet Interface																																												
Ethernet Ports	2 x RJ45	2 x RJ45																																										
Standard	10/100BASE-TX																																											
Distance	100m																																											

Switch Architecture	Store-and-Forward	
Address Table	1K	
ESD Protection	6KV	
Surge Protection	2KV	
Hardware		
Installation	DIN-rail kit and wall-mount ear	
Enclosure	IP 30 metal	IP40 metal
Dimensions (W x D x H)	32 x 97 x 135 mm	56 x 87 x 135 mm
Weight	477 g	625 g
LED Indicators	System: Power 1, Power 2, Fault, SYS TP Port: Link/Active Serial Port: Tx and Rx	System: Power 1, Power 2, Fault, SYS, I/O TP Port: Link/Active Serial Port: Tx and Rx
Power Requirements	12~48V DC, redundant power with reverse polarity protection	
Power Consumption	Full Loading 12VDC: 0.326A (3.8 watts) 24VDC: 0.176A (4.2 watts) 48VDC: 0.114A (5.4 watts)	Full Loading 12VDC: 0.419A (5.1 watts) 24VDC: 0.227A (5.4 watts) 48VDC: 0.136A (6.5 watts)
Connector	Removable 6-pin terminal block for power input Pin 1/2 for Power 1, Pin 3/4 for fault alarm, Pin 5/6 for Power 2	
DI and DO	N/A	2 digital input (DI): Level 0: -24V~2.1V ($\pm 0.1V$) Level 1: 2.1V~24V ($\pm 0.1V$) Input Load to 24V DC, 10mA max. 2 digital output (DO): Open collector to 24V DC, 100mA max.
Alarm	Provides one relay output for power failure Alarm relay current carry ability: 1A @ DC 24V	
Reset Button	< 5 sec: System reboot > 5 sec: Factory default	
Management		
Management Interfaces	Web management Telnet Console management Windows-based VCOM Utility management PLANET Smart Discovery Utility	
IP version	IPv4 and IPv6	
Operation Mode	TCP Server TCP Client UDP Client Virtual COM RFC2217 Telnet Server	

	Pair Connection – Remote (Slave) Pair Connection – Local (Master)
Virtual COM Utility Platform Supports	Windows based Only: Windows XP Windows Server 2003 Windows 7 Windows Server 2008 Windows 8 (Must install the latest version of WinPcap) Windows Server 2012 (Must install the latest version of WinPcap) Windows 10
Alert	Built-in buzzer and RTC
Security	Allow max. 4 accessible IP address hosts/ranges
SNMP MIBs	RFC1213 MIB-II RFC1317 RS232-like OIDs
Standards Conformances	
Regulatory Compliance	FCC Part 15 Class A, CE Certification Class A
Stability Testing	IEC60068-2-32 (Free fall) IEC60068-2-27 (Shock) IEC60068-2-6 (Vibration)
Standards	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3x flow control and back pressure RFC 768 UDP RFC 793 TFTP RFC 791 IP RFC 792 ICMP RFC 854 Telnet RFC 958 NTP RFC 1591 DNS (client only) RFC 1908 SNMPv2c RFC 2068 HTTP RFC 2131 DHCP Client RFC 2732 Format for Literal IPv6 Addresses in URL's RFC 3315 DHCPv6 Client RFC 3513 IPv6 Addressing Architecture RFC 3596 DNSv6 RFC 4443 ICMPv6 EIA/TIA RS232/422/485
Regulatory Approval	RoHS
Environment	
Operating Temperature	-40 ~ 75 degrees C
Storage Temperature	-40 ~ 85 degrees C
Humidity	5 ~ 95% (non-condensing)

3.3 PHYSICAL SPECIFICATIONS:

Dimensions:

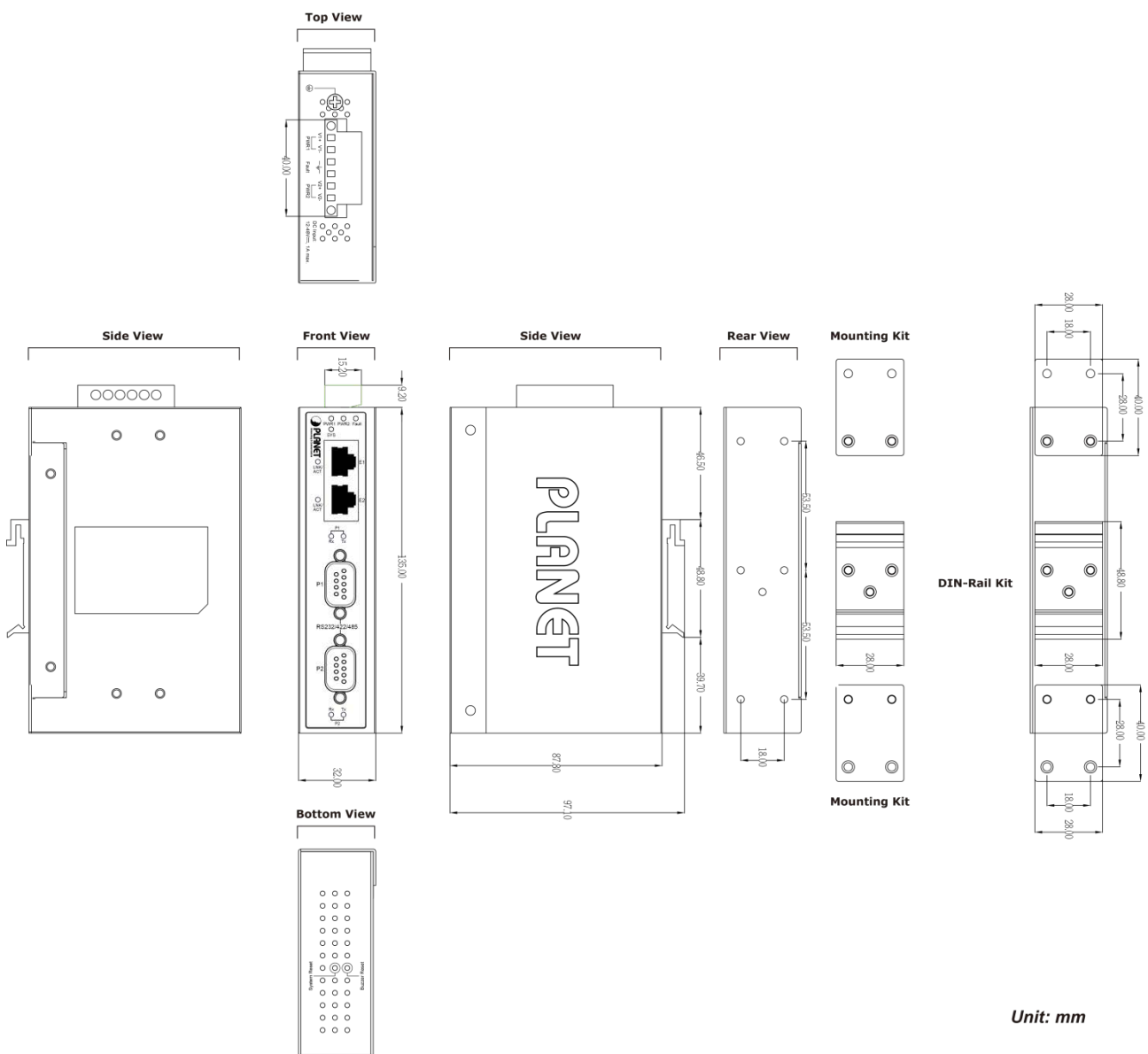
- **ICS-2200T**: 32 x 97 x 135 mm(W x D x H)
- **ICS-2400T**: 56 x 87 x 135 mm(W x D x H)

Weight:

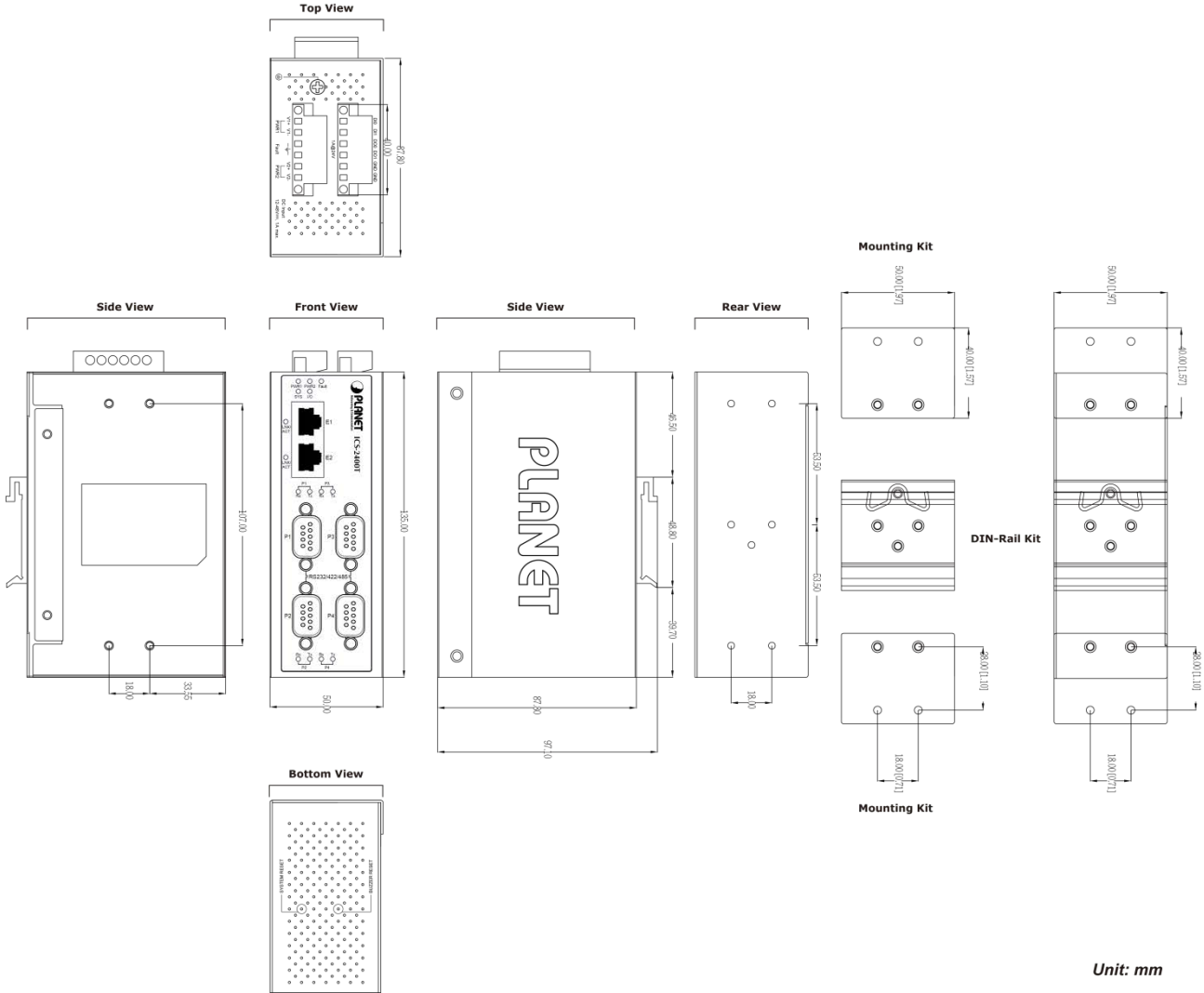
- **ICS-2200T**:
- **ICS-2400T**:

Drawing:

- **ICS-2200T**:

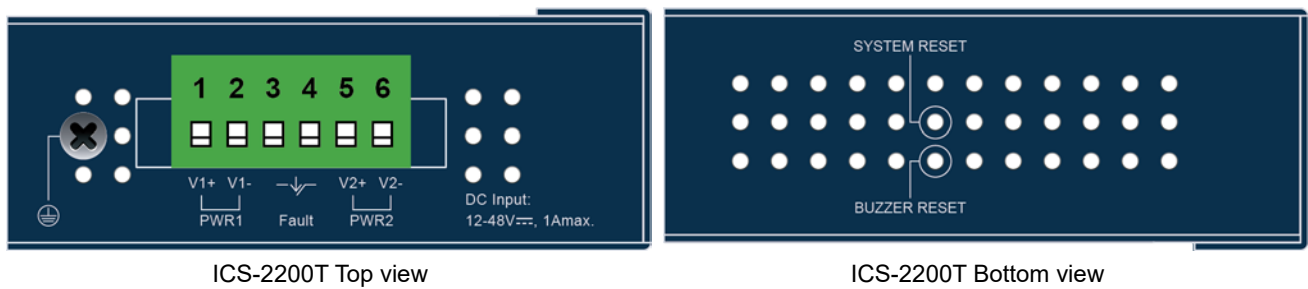


■ **ICS-2400T:**

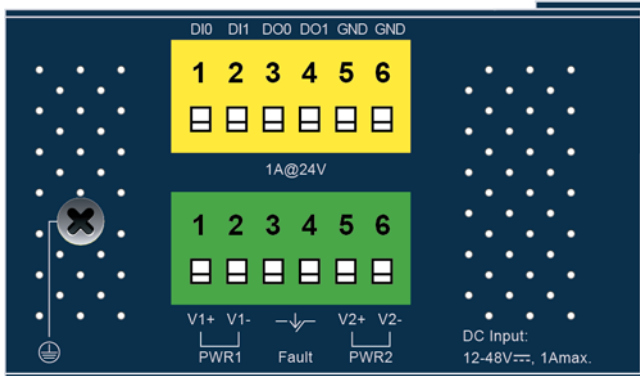


Top View and Bottom view

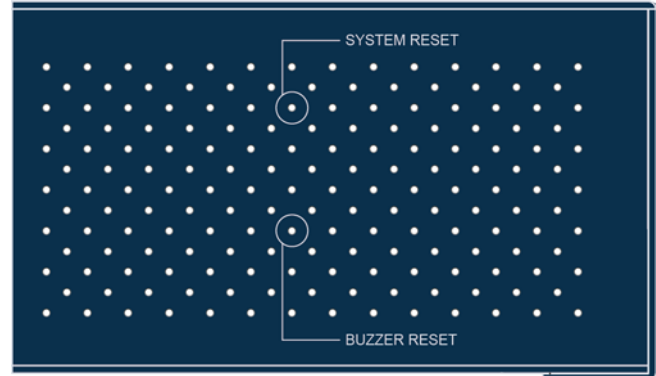
■ **ICS-2200T:**



■ **ICS-2400T:**



ICS-2400T Top view

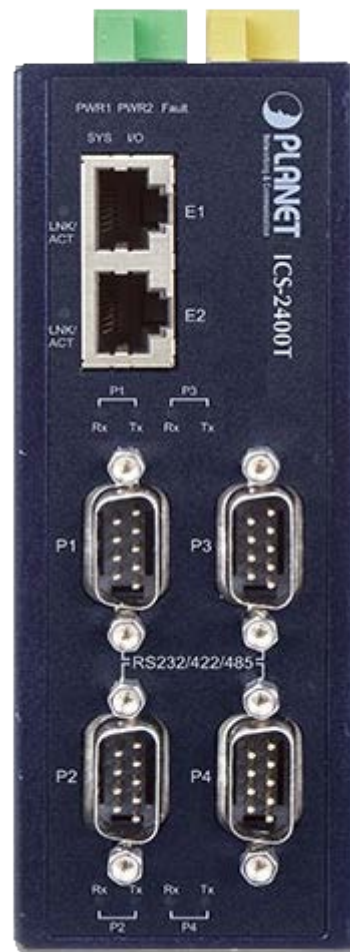


ICS-2400T Bottom view

Front View



ICS-2400T front view



ICS-2400T front view

LED Definition:

■ **System**

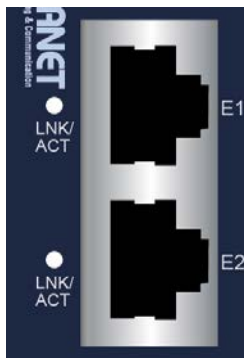
LED	Color	Function	
PWR 1	Green	Lit:	Power 1 is active
		Off:	Power 1 is inactive
PWR 2	Green	Lit:	Power 2 is active
		Off:	Power 2 is inactive
Fault	Red	Lit:	Software indicates either Power 1 or Power 2 has no power
		Off:	No failure
SYS	Green	Blinks:	System booting
		Lit:	System ready

■ **Serial Ports (P1~P4)**



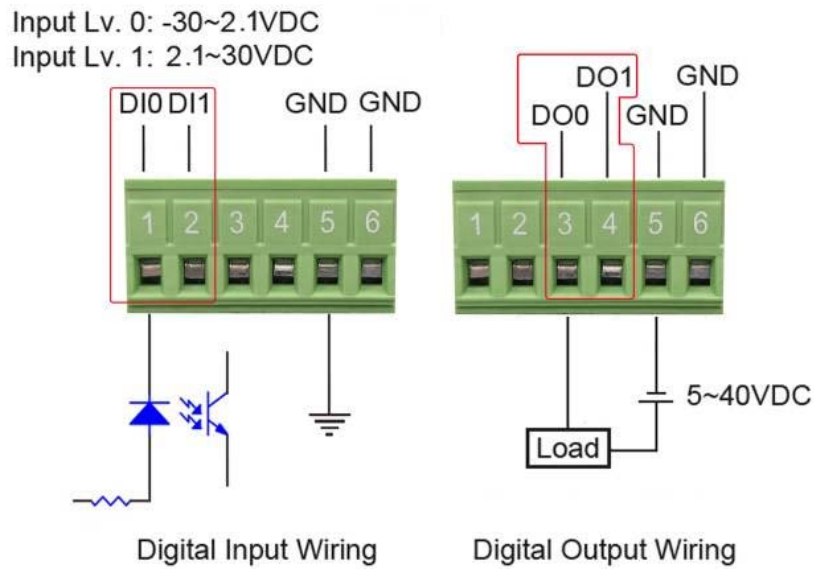
LED	Color	Function	
TX	Green	Lit:	Serial port is transmitting data
		Off:	No data is transmitting through the serial port
RX	Amber	Lit:	Serial port is receiving data
		Off:	No data is receiving through the serial port

■ **10/100BASE-TX Port**



LED	Color	Function	
LNK/ACT	Green	Lit:	Indicates that the port is link up.
		Blinks:	Indicates that the switch is actively sending or receiving data over that port
		Off:	Indicates that the port is link down

■ DI/DO Connector of ICS-2400T:



3.4 ENVIRONMENTAL SPECIFICATIONS

Operating:

Temperature: -40 ~75 degrees C

Relative Humidity: 5% ~ 95% (non-condensing)

Storage:

Temperature: -40 ~85 degrees C

Relative Humidity: 5% ~ 95% (non-condensing)

3.5 ELECTRICAL SPECIFICATIONS

Power Requirements:

12-48V DC, redundant power with reverse polarity protection

Power Consumption:

LOADING DC INPUT	ICS-2200T Full Loading	ICS-2400T Full Loading
12V	3.8 watts	5.1 watts
24V	4.2 watts	5.4 watts
48V	5.4 watts	6.5 watts

3.6 REGULATORY COMPLIANCE

FCC Part 15 Class A, CE

Stability Testing:

- IEC60068-2-32 (Free Fall)
- IEC60068-2-27 (Shock)
- IEC60068-2-6 (Vibration)

3.7 RELIABILITY

MTBF > 100,000hrs @ 25 degrees C

3.8 BASIC PACKAGING

- The Industrial Serial Server x 1
- Quick Installation Guide x 1
- DIN-rail Kit x 1
- Wall Mounting Kit x 1
- RJ45 Dust Cap x 2

3.9 PACKING INFORMATION

	ICS-2200T	ICS-2400T
Box Dimensions (W x D x H):	205 x 144 x 46 mm	202 x 140 x 94mm
Gross Weight:	584 g	790 g
Carton Dimensions (W x D x H):	435 x 325 x 280 mm	600 x 239 x 332 mm
Total Weight:	12.48 kg	10.2 kg
Quantity:	20pcs in one carton	12pcs in one carton